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NORTHWESTERN UNIVERSITY BULLETIN

UNIVERSITY OF ILLINOIS

The Graduate School
Announcement of Courses
1911-12

VOLUME XI—NUMBER 24
MARCH, 1911



Northwestern University

¶ THE COLLEGE OF LIBERAL ARTS, located at Evanston, in an ideal college community, offers special preparation for the professions, and for pursuits requiring broad training.

¶ THE MEDICAL SCHOOL is one of the oldest, largest, and best equipped. Seven hospitals are open to students. Clinic material is abundant.

¶ THE LAW SCHOOL, the oldest law school in Chicago, offers unexcelled library facilities and special courses that prepare for immediate practice in any state upon graduation.

¶ THE COLLEGE OF ENGINEERING has its own building just completed, beautifully situated, a model of efficiency. Offers courses in all branches of Engineering. Technical studies in a University environment.

¶ THE SCHOOL OF PHARMACY offers a scientific training in Pharmacy, Chemistry, and Drug and Food Analysis. Special courses for Drug Clerks.

¶ THE DENTAL SCHOOL offers expert training in theory and practice. Facilities are unsurpassed. Its clinic is the largest in the world.

¶ THE SCHOOL OF MUSIC affords a scientific preparation for music as an accomplishment and a profession. It is located at Evanston.

¶ THE SCHOOL OF COMMERCE provides instruction in economics, elementary and corporation finance, commercial law and accounting. Many lecturers from business and professional life.

¶ EVANSTON ACADEMY prepares for college, for engineering, for professional schools, and for business.

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Evanston
Published by the University
1911

The Graduate School

CALENDAR FOR 1911-12

1911

September 25, Monday

September 28, Thursday

October 10, Tuesday

December 6, Wednesday

Academic year 1911-12 begins.

Class work begins.

Last day for the registration of candidates for advanced degrees.

Last day for filing the titles of theses for advanced degrees.

1912

February 9, Friday

February 12, Monday

May 11, Saturday

May 25, Saturday

June 12, Wednesday

Second semester of year 1911-12 begins.

Class work for the second semester begins.

Last day for the presentation of theses for advanced degrees.

Oral examinations of candidates for advanced degrees.

Fifty-fourth Annual Commencement.

THE GRADUATE SCHOOL

The Graduate School of Northwestern University was organized by action of the Board of Trustees in November, 1910, for the promotion and harmonizing of graduate study within the University. Prior to this time graduate work had been under the guidance of a Committee of the faculty of the College of Liberal Arts and courses leading to advanced degrees had been offered since 1891. The present organization provides that the graduate school shall be under the direction of a Board of Graduate Studies, representing the several schools of the University in which graduate courses are offered. This Board determines the conditions of enrollment in the Graduate School and announces the courses of study under the various faculties which are recognized as graduate courses counting toward advanced degrees. It prescribes the regulations under which advanced degrees are conferred and recommends candidates for such degrees.

For the year 1910-11 the Board of Graduate Studies consists of the following members:

THOMAS FRANKLIN HOLGATE, Ph.D., LL.D., Dean of the College of Liberal Arts, Chairman.

JOHN HARPER LONG, M.S., Sc.D., Professor of Chemistry in the Medical School.

JAMES TAFT HATFIELD, Ph.D., Professor of German Language and Literature.

HENRY CREW, Ph.D., Fayerweather Professor of Physics.

J. SCOTT CLARK, A.M., Litt.D., Professor of English Language.

JOHN HENRY WIGMORE, A.M., LL.D., Professor of Law and Dean of the Law School.

WILLIAM ALBERT LOCY, Ph.D., Sc.D., Professor of Zoölogy.

JAMES ALTON JAMES, Ph.D., Professor of History.

EDOUARD PAUL BAILLOT, L.H.D., Professor of Romance Languages.

ULYSSES SHERMAN GRANT, Ph.D., William Deering Professor of Geology.

CHARLES LOUIS MIX, A.M., M.D., Professor of Physical Diagnosis.

JOHN ADAMS SCOTT, Ph.D., Professor of Greek Language and Literature.

ARTHUR CHARLES LEWIS BROWN, Ph.D., Professor of English Literature.

WALTER DILL SCOTT, Ph.D., Professor of Psychology.

WILLARD EUGENE HOTCHKISS, Ph.D., Professor of Economics.

DAVID RAYMOND CURTISS, Ph.D., Professor of Mathematics.

JOHN GORDON WILSON, A.M., M.B., C.M., Professor of Otology.

JOHN FILLMORE HAYFORD, C.E., Professor of Civil Engineering and
Director of the College of Engineering.

CURTIS HIDDEN PAGE, Ph.D., Professor of English Literature.

OMERA FLOYD LONG, Ph.D., Associate Professor of Latin.

FREDERICK BEERS CROSSLEY, LL.B., Secretary of the Law School.

ADMISSION AS GRADUATE STUDENTS

Persons who have received a bachelor's degree from a college or scientific school in good standing may be admitted to this University as graduate students on presentation of proper certificates of character and qualification. Admission to the rank of graduate student does not, however, imply candidacy for an advanced degree in any stated time and such candidacy can only be determined after a consideration of individual merits.

For those who have completed the equivalent of the undergraduate major in some one department, the standard requirement for the Master's degree is one full year of resident graduate work and the completion of a thesis which shall indicate scholarly attainments. For the degree of Doctor of Philosophy three years of graduate work and the production of a thesis which shall contain an important contribution to knowledge, are demanded. In all cases the Board of Graduate Studies will determine the sufficiency of the work offered for a degree.

Applications for admission should be addressed to the Chairman of the Board of Graduate Studies, University Hall, Evanston, Illinois.

REGISTRATION

Candidates for an advanced degree must register in person with the Chairman of the Board of Graduate Studies not later than the tenth of October next preceding the date of the final examination. Persons who are not candidates for a degree may register at other times, subject to approval by the Board.

A candidate for an advanced degree must furnish the necessary data for the proper record of his application, and a statement of the courses of study he proposes to pursue. His application and the statement of courses must be approved by the Board of Graduate Studies and by the heads of the departments in which the work is to be taken.

A graduate of a professional school desiring to become a candidate for a Master's degree under Rule 3, page 7 must register in the Graduate School as early as the tenth of October next following the completion of the professional course.

Graduates of this or of other colleges or universities, not candidates for an advanced degree, may with the consent of the departments concerned and the approval of the Board of Graduate Studies, register as resident students in such advanced studies as they are found qualified to pursue.

FEEES AND EXPENSES.

Matriculation Fee—A student on first entering the University is required to pay a matriculation fee of five dollars. This fee is paid but once and is not returnable.

Tuition Fees—The tuition fees for graduate students, whether resident or non-resident, are determined by the number of hours of instruction taken. The fee for a lecture, or seminary, or laboratory course is five dollars a year for each year-hour of credit; the total amount of tuition fees in any one year, however, shall not exceed forty dollars.

Laboratory Fees—Graduate students pursuing laboratory courses pay additional laboratory fees in accordance with the table printed in the general catalogue of the University.

Graduation Fee—A fee of ten dollars is payable by candidates taking any degree on the recommendation of the Board of Graduate Studies. This fee is due on the first day of May of the year in which the degree is conferred.

Bills for fees are made out at the office of the Registrar in University Hall. Payment is made at the office of the Business Manager, 518 Davis Street, Evanston. Checks should be made payable to "Northwestern University," and all payments should be made in currency or in Chicago exchange.

FELLOWSHIPS AND SCHOLARSHIPS

University Fellowships—For the promotion of graduate study and research, the University awards annually ten fellowships of three hundred dollars each. These are assigned from year to year to various departments according to the merits of the applicants. Fellowships are open to men and women alike whether graduates of this University or of other institutions, and appointments are made for one year.

Fellows pay no tuition fees, but may be required to give limited assistance in the work of the department, not, however, to such an extent as to interfere with the primary purpose of the fellowship. Fellows entering from other institutions pay the matriculation fee.

Applications for appointment as Fellow must be made not later than the first of April. Awards are made not later than the first of May. Blank forms for applications may be had from the office of the Registrar, University Hall, Evanston.

University Settlement Fellowship—This fellowship yields an income of three hundred dollars, contributed by the students of the College of Liberal Arts, and carries exemption from tuition fees. The holder is required to reside in Northwestern University Settlement.

University Scholarships—Five graduate scholarships of one hundred dollars each are awarded annually. The holders pay the regular graduate tuition fees.

Catherine M. White Scholarships—From a bequest under the will of Catherine M. White, of Evanston, there have been established three scholarships paying one hundred and twenty dollars a year each. The holders pay to the regular graduate tuition fee.

Marcy Scholarship in Biology—The University has at its disposal a table at the Marine Biological Laboratory, Wood's Holl, Massachusetts, for the use of advanced students of the biological departments. The occupants of this table are entitled to all the privileges of the laboratory, including instruction, lectures, and the use of appliances and apparatus.

The American School of Classical Studies at Rome—The University is a contributor to the American School of Classical Studies at Rome, and is represented on its Board of Managers by a member of the Faculty. The school affords facilities for archæological and classical investigation and study in Rome, and graduates of the University are entitled to its advantages without tuition fees.

Prizes—The Harris Prize in Economics and the Orrington Lunt Prize in History and English Literature, each of one hundred dollars, are open alike to graduates and undergraduates.

LIBRARIES

The library of the College of Liberal Arts contains over 75,000 bound volumes. This, together with the library of Garrett Biblical Institute and the Evanston Public Library, puts at the disposal of

graduate students in Evanston over 150,000 volumes. The College library is especially rich in the classics and in Germanic literature and contains many rare editions, journals, and subsidiary works of reference in these lines of study. It is also well equipped in other departments in which graduate work is offered. In addition to the college and other libraries in Evanston, advanced students of literature, history, science and other branches, find in Chicago a notable group of libraries which grant their privileges freely. The Newberry Library, which is easily accessible and especially strong in general literature, contains about 200,000 volumes. The John Crerar Library, with its 250,000 volumes, is one of the great scientific libraries of the world, while the Chicago Public Library has about 370,000 volumes on general topics.

DEGREES

THE MASTER'S DEGREE

A Master's degree may be conferred on a Bachelor of Northwestern University, or of another institution of accepted grade, under the following regulations:

1. The candidate must have pursued studies in residence in the College of Liberal Arts or in the Graduate School of Northwestern University for at least one year, except as stated below. Residence requires regular attendance upon all prescribed lectures or other exercises in the courses which the candidate pursues, and such prescribed lectures and exercises must occur at least once a week in each course of instruction.

2. A Bachelor of Northwestern University may become a non-resident candidate for the corresponding Master's degree after having completed one-half year of graduate work, fifteen semester hours, in residence, but in such case the remaining half-year of work, see Rule 4 below, if done out of residence, must be extended over at least two semesters. Graduates of other institutions are not admitted as non-resident candidates for a degree.

3. A Bachelor of Northwestern University, or of another institution of accepted grade, may become a candidate for a Master's degree while pursuing studies in the Medical School or Law School of this University, or in Garrett Biblical Institute, or upon the completion of the professional course in one of these schools, subject to the regulations governing registration in the Graduate School.

4. The candidate for a Master's degree must present credit of a high grade in approved courses of study amounting to thirty semester hours. If he is enrolled in one of the professional schools above enumerated, or is a graduate therefrom, he must present credit of a high grade amounting to twelve semester hours of advanced work in an approved field, in addition to the maximum prescribed professional course, such work to be taken either under the Faculty of the College of Liberal Arts or under the Faculty of the professional school, but in either case to be approved by the Board of Graduate Studies.

5. At least one-half of the work offered for a Master's degree must be chosen from a department of study in which the candidate has previously completed the undergraduate major or its full equivalent.

6. The candidate must present a thesis on an approved topic pertaining to his primary subject. The subject of his thesis must be filed with the Registrar not later than the first Wednesday in December; and the thesis itself must be filed with the Registrar not later than the third Saturday of May. It must be printed or type-written in prescribed form and a copy shall be furnished to the library of the College of Liberal Arts.

7. A student in the College of Liberal Arts who during his undergraduate course devotes to the continuation of his major subject, or to other advanced topics approved by the Board of Graduate Studies, time in excess of the total of one hundred and twenty hours required for a Bachelor's degree, may for such work receive credit toward a Master's degree; but in no case will the Master's degree be conferred in less than one year after the conferring of the Bachelor's degree.

8. A non-resident candidate for a Master's degree is required, at stated times, to make written reports on the progress of his work.

9. The final examination of the candidate for a Master's degree takes place at the University at an appointed date, about May 20. The examination is conducted by a committee composed of the head of the department in which the student has done his primary work and not less than two other members of the Faculty chosen from the same or from related departments. The committee in the case of a candidate doing work in a professional school shall include at least two members of the Faculty of the College of Liberal Arts.

THE DOCTOR'S DEGREE

The degree of Doctor of Philosophy is conferred under the following regulations:

1. A candidate for the degree of Doctor of Philosophy must have received the Bachelor's degree from Northwestern University, or from some other institution of accepted standing.
2. The degree may be conferred on successful candidates after three years of graduate study, of which at least two must be in residence. The last year, or the first two years, must be spent in residence at Northwestern University. The period of three years may, however, be shortened in the case of students who, as undergraduates, have pursued special studies beyond the requirement for major work in the direction of their proposed graduate work. Study for a specified time will in no case be regarded as sufficient ground for conferring the degree, but in all cases high attainments in scholarship and evidence of capacity for original investigation are demanded.
3. The candidate must give two-thirds of his time to advanced work in one department of study which shall constitute his primary subject, and the remaining time to either one or two secondary subjects. The requirement "advanced work" implies preliminary study in the given subject equivalent to at least an undergraduate major in that department.
4. The candidate must have a reading knowledge of French and German as a preliminary qualification but in exceptional cases an equivalent in Latin, Greek, or Hebrew may be accepted instead of French.
5. The candidate must present a thesis upon an approved topic pertaining to his primary subject which gives evidence of original investigation. A revised typewritten copy of the thesis in prescribed form must be filed with the Registrar as early as the third Saturday in May. If the thesis is approved, the candidate must, within such time as shall be designated, present twenty-five printed copies to the University Library.
6. The final examination, which is both written and oral, is held about May 20, and covers the entire primary subject, including the topic of the thesis. The secondary subject, or subjects, may be discontinued when the candidate has fulfilled the requirements of attendance at lectures and has passed the necessary written examinations.

THE DOCTOR'S DEGREE FOR CANDIDATES IN THEOLOGY

Students in Garrett Biblical Institute may become candidates for the degree of Doctor of Philosophy under the following special regulations. The general regulations on examinations, theses, and a knowledge of foreign languages apply to these candidates.

1. The candidate must have completed the course for a Bachelor's degree, the sufficiency of which has been accepted by a joint committee of the Faculty of the Institute and of the Board of Graduate Studies.

2. He must have completed two full years of theological study, either in Garrett Biblical Institute or in another theological school of recognized standing.

3. He must thereafter be accepted as a candidate for the degree of Doctor of Philosophy by a vote of the Faculty of the Institute, and must be registered in the Graduate School as a candidate for such degree; he must then continue in residence at least two years, and must complete the work of two full years. Of this work two-thirds must be taken in one department of the Institute; the remaining one-third may be taken in not more than two departments of the Institute of the College of Liberal Arts. During these two years of residence the candidate is subject to the direction of the head of the department in which his primary work is taken. The whole course of study is subject to the approval of the Board of Graduate Studies.

4. Of the four years required for a degree of Doctor of Philosophy under these regulations, three at least must be spent in residence at a theological school of high standing, and the last two must be spent in Garrett Biblical Institute.

Courses for Graduate Students

The following list of graduate and advanced courses is announced for the year 1911-12, all courses continuing throughout the year unless otherwise stated. In addition to these, opportunity for advanced work is offered in the Medical School, the Law School, the College of Engineering, and in Garrett Biblical Institute. The courses here listed and others of a more elementary character are described in detail in the general catalogue of the University, which may be obtained on application to the Registrar, University Hall, Evanston, Illinois.

BIBLICAL LITERATURE

Background of the Gospel History 2 hours

Professor Patten

A study of the conditions in the Greco-Roman world antecedent to the Christian era.

The Bible and the Monuments 2 hours

Professor Patten

A survey of the progress of archæological research in Bible lands and its relation to Biblical history and interpretation.

BOTANY

Cytology of Bryophyta. 3 to 5 hours

Mr. Woodburn.

Special problems in the cytology of Liverworts and Mosses.

Special Problems in Plant Development 5 hours

Professor Atwell

The early stages in the development of Seed Plants.

CELTIC

Old-Irish 2 hours

Professor Brown

Grammar and the interpretation of texts. Stokes and Strachan, Old-Irish Paradigms and Glosses; Strachan Stories from the Táin.

CHEMISTRY

- Sanitary Analysis* 3 hours
Dr. Lewis
Examination of water, milk, butter, cheese, syrups, honeys, spices, edible oils, and extracts.
- Advanced Analytical Chemistry* 3 year-hours
Professor Hines
Selected topics. Special methods for the analysis of technical materials, etc.
- Gas Analysis* 3 hours
Professor Hines
- Iron and Steel Analysis* (second semester) 3 hours
Professor Hines
- Organic Chemistry. Advanced Course* 2 hours
Dr. Lewis
Lectures
- Organic Preparations* 3 hours
Dr. Lewis
- Advanced Course in General Chemistry (Physical)* 2 hours
Professor Young and Professor Hines
- Topics of Investigation*
Dr. Lewis
Problems involving original research in organic chemistry.

ECONOMICS, FINANCE, AND ADMINISTRATION

- Public Finance and Taxation* 2 hours
Professor Deibler
A study of budgetary legislation and legislative control and audit, with particular reference to the United States.
- The Relation of Government to Industry* 2 hours
Professor Hotchkiss
Development of the "laissez faire" doctrine and reasons for its

abandonment. Government regulation and public policy. Comparison of American and foreign regulations. Critical study of specific regulative measures.

Distribution of Wealth 2 hours

Professor Deibler

An examination of modern economic theories and their social significance.

Corporation Finance 3 hours

Professor Howard

A discussion of the organization, capitalization, management, and dissolution of corporations; corporation law, especially of Illinois and New Jersey; corporation accounting; the marketing of stocks and bonds.

Seminary 3 to 6 hours

Professors Hotchkiss, Deibler, Howard, and Mr. Persons

The student devotes the year to an extended original investigation of some specific economic problem.

EDUCATION

Adolescence 2 hours

Professor Libby

This course deals with the physical growth, the mental development, the feelings, the imagination, the health (mental and physical), the religious, and the motor education of youth.

Education from the Sociological Point of View (first semester)

Professor Libby 3 hours

The school in relation to the church and other social forces. The university settlement, the juvenile court, reform school, kindergarten, and schools for defectives will be among the subjects treated.

Experimental Pedagogy 3 hours

Investigation of the basis of method, study of the contents of children's minds, fatigue, types of imagination, fidelity of memory, retention and recall. The learning process is studied by introspection and by observation of others.

ENGLISH LANGUAGE

An Advanced Course in Composition 2 hours
Professor Clark
Every member of the class writes twice a week.

Biblical English 3 hours
Professor Clark
A study of the Biblical diction and imagery to be found in the works of some chosen author, with parallel reference to the text of the Bible.

Old English 3 hours
Mr. Bryan
First semester: Grammar, reading the prose selections of Bright's Anglo-Saxon Reader. Second semester: *Bēowulf*. Old English versification.

History of the English Language 2 hours
Mr. Bryan
First semester: A rapid survey of the historical development of the sounds and forms of Modern Standard English.

Early Middle English 2 hours
Mr. Bryan
Second semester: Reading the selections in Emerson's Middle English Reader; the dialects of Middle English as related to those of Old English and to Modern Standard English.

ENGLISH LITERATURE

Chaucer and Middle-English Literature 3 hours
Professor Brown
In this course are read a large number of the Canterbury Tales; much of Gower's *Confessio Amantis*, of the Vision of Piers Plowman, the Pearl, and the Owl and the Nightingale.

English Literature of the Sixteenth and Seventeenth Centuries
Professor Page 3 hours
Lectures on Spenser, Milton, and other authors of the period.

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- The Elizabethan Drama* 3 hours
Professor Page
The development of the drama from the mysteries and miracle plays to the Restoration.
- Caedmon and Cynewulf* 2 hours
Professor Brown
The interpretation and discussion of a large number of Anglo-Saxon poetical texts. Some previous training in Anglo-Saxon is essential.
- Seminary* 3 hours
Professor Brown
The English Metrical Romances of the Arthurian Cycle, with especial reference to the influence of Celtic literature.
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NOTE—The attention of advanced students in English is called to the courses in Gothic and Icelandic, announced under Scandinavian Languages, to the course in Middle High German, under German, to the course in Old French under Romance Languages, and to that in old Irish under Celtic.

GEOLOGY

- Economic Geology* 3 hours
Professor Grant
The mineral resources of the United States with special reference to recent investigations on the origin of ore deposits.
- Historical Geology* 3 hours
Professor Mansfield
A review of the geological periods, with special emphasis on the development of the North American continent, as indicated by the distribution and characters of rock formations and fossils.
- Petrology* 4 hours
Professor Grant
Optical mineralogy, the determination of minerals by use of the petrographical microscope, and the study of the more important rocks.

Advanced Petrology; Pre-Cambrian Geology 2 to 6 hours

Professor Grant

The detailed study of some definite group of rocks, and a study of the methods used in investigating the Pre-Cambrian rocks, with special reference to the formations containing the great deposits of iron ore and copper ore in the Lake Superior region.

Advanced Geography

Professor Mansfield

Laboratory, library, or field study, with the preparation of a report. Topics and hours to be arranged.

GERMAN

Seminary for German Literature 2 to 5 hours

Professor Hatfield

Historical Grammar 3 hours

Professor Curme

A study of the forms and syntax of the German language in their historical development, in connection with the reading of important literary texts.

Middle High German Masterpieces 2 hours

Professor Curme

The Nibelungen, Parzival, and Titurel.

History of German Literature 2 hours

Professor Hatfield

A systematic study of German literature from the earliest times. Conducted in English and German.

Modern German Drama 2 hours

Professor Curme

Dramatists of the second half of the Nineteenth Century.

German Novel and Short Story 2 hours

Professor Edward

Novelists of the second half of the Nineteenth Century.

- Goethe's Faust* 2 hours
Professor Hatfield
A study of both parts of the drama, based upon Witkowski's complete edition.
- Social Tendencies in German Literature in the Nineteenth Century*
Mr. Roloff 2 hours
The main political and social currents as shown in the literature of this period.

GREEK

- Homer and Greek Epic* 4 hours
Professor Scott
The Iliad and Odyssey are read in full, and the later writers are used to interpret Homer. Especial attention is given to the verse and language of Homer. The results of excavations in Troy, Mycenæ, Crete, and elsewhere are used to illustrate the life and customs of the time of Homer.
- Greek Lyric Poets and General Greek Literature* 4 hours
Professor Scott
The course is intended to give a rapid survey of several fields subsequent to Homer. The lyric poets are read and the verse scanned. Five dialogues of Plato, four plays from Aeschylus, Sophocles, and Euripides, and several of the best dialogues of Lucian will be read, and a careful study will be made of the Greek drama and the methods of its production.

HISTORY

- Methods of Teaching History* 1 hour
Professor James
The course has especial reference to the teaching of history in secondary schools.
- European Diplomacy and World Politics* 2 hours
Professor Harris
Among the topics considered are the Dual and Triple Alliances, Near Eastern Question, Imperialism, the new Internationalism, occupation of Africa, competition in Central Asia, and the contest in Manchuria and the far East.

- Rise of Prussia* 2 hours
Dr. Lichtenstein
The political, intellectual, and economic development of Prussia and Germany since the time of the great Elector; age of Frederick the Great; Napoleonic period; the Reaction; the Bismarck era.
- England under the Tudors and Stuarts* 2 hours
Dr. Terry
A course dealing with the constitutional and religious struggles during the sixteenth and seventeenth centuries, economic and social changes and international relations.
- Historical Bibliography and Criticism* 1 hour
Dr. Lichtenstein
Methods of historical criticism and investigation. Especial reference to works on Mediaeval and Modern European history.
- History of the West* 2 hours
Professor James
The advance of the frontier; the political and industrial development of the West, and its effects upon national development.
- Diplomatic History of the United States* 2 hours
Professor James
History of the foreign relations of the United States from 1800 to the present. Special attention is given to the Monroe Doctrine and its applications, diplomacy of expansion, and the United States as a world power.
- Seminary in American History* 3 hours
Professor James
During the year 1910-11 the subjects for consideration were (a) the diplomacy of the administrations of Washington and Adams, and (b) slavery in the United States.

LATIN

- Latin Prose* 2 hours
Professor Bonbright
A study of a selected form or period of prose production; reading and interpretation, with written reports.

- Vergil* 2 hours
Professor Long
Bucolics and Georgics; lectures introductory to the study of Vergil and the Roman Epic; Aeneid; preparation of papers on assigned topics.
- Selected Period of Literary Production* 2 hours
Professor Anderson
In 1911-12 the subject will be Latin Comedy, with special reference to Terence.

MATHEMATICS

- Advanced Calculus* 3 hours
Professor Curtiss
Infinite series; partial differentiation; differential geometry; definite integrals; differential equations.
- Analytical Mechanics* 3 hours
Professor Wilson
Dynamics of a rigid body—an advanced course.
- Advanced Analytical Geometry* 3 hours
Professor Holgate
An introduction to the study of some of the more important transformations, as projection, inversion, and polar reciprocation.
- The Partial Differential Equations of Mathematical Physics* 3 hours
Professor Curtiss
The solution of problems in Heat, Electricity, Acoustics, etc., by means of Fourier's series and allied developments; ordinary linear differential equations whose solutions are connected with such problems; the theory of the Potential Function.
- The Theory of Numbers* (first semester) 3 hours
Professor Morehead
An introduction to the classical theory of numbers, including a discussion of divisibility, congruences, indices, quadratic and n -power residues, quadratic forms, the factorization of large numbers.

- Differential Geometry* (second semester) 3 hours
Professor Morehead
The application of the Calculus to the geometry of space curves and surfaces.

PHILOSOPHY

- Advanced Ethics* 2 hours
Professor Ewer
A study of the development of moral ideas, and their implications for the contemporary social movement and for the philosophy of religion.
- Advanced History of Philosophy* 3 hours
Professor Longwell
First semester, Aristotle, Aquinas, Kant; second semester, Comte, Mill, Spencer. Special reference to metaphysics and the theory of knowledge.

PHYSICS

- Electricity and Magnetism* 3 hours
Professor Crew
Primarily for undergraduates, but also appropriate for graduate students who have not had an equivalent course. A course in the elementary mathematical theory of electricity and magnetism, accompanied by a laboratory course in electrical measurements. Foster and Porter's *Electricity and Magnetism* indicates the ground covered and the character of the course.
- Alternating Currents* 2 hours
Professor Tatnall
Open to undergraduates who have had a year's work in electricity and electrical measurements.
Theory of alternating-current circuits, accompanied by a laboratory course in the measurement of current, inductance, capacity, and in an oscillographic study of wave-form and phase-relations, etc.

Mathematical Physics; Spectroscopy 2 hours

Professor Crew

A course including the general theory of optical instruments and the experimental results obtained by the spectroscope and interferometer. Schuster's *Theory of Optics* gives the ground covered and method employed.

Mathematical Physics; Electricity 2 hours

Professor Crew

Advanced mathematical theory, using Jeans' *Mathematical Theory of Electricity and Magnetism*. Given in alternate years with the preceding course.

PSYCHOLOGY

Psychology of the Abnormal Mind (second semester) 3 hours

Dr. Gault

A description of various phenomena of the abnormal mind and a critical examination of hypotheses that have been advanced to explain them.

Advanced Experimental Psychology 2 hours

Professor Scott

Research Work 2 to 5 hours

Professor Scott

ROMANCE LANGUAGES

FRENCH

Modern French Literature 2 hours

Professor Baillot

A study of the drama, the novel, and the poetry of the nineteenth century. In the first semester the romantic literature is studied; in the second, the realistic and naturalistic authors are reviewed as fully as time allows.

Advanced French 2 hours

Professor Baillot

Every year some period of literature is studied in all its phases. The principal works are read and analyzed, and at the end of each semester the students are expected to write in French a paper embodying the result of the reading done by them. This course is conducted in French.

Old French 2 hours

Professor de Salvio

Lectures on French phonology and morphology. Early French literature.

ITALIAN AND SPANISH.

Early Italian 2 hours

Professor de Salvio

Lectures on Italian phonology and morphology. The literature of the Trecento. *Monaci Crestomazia dei primi secoli*.

Early Spanish 2 hours

Professor de Salvio

Lectures on Spanish phonology and morphology. Spanish Literature to the fifteenth century.

Dante Divina Commedia 3 hours

Professor de Salvio

Critical study of the text, with lectures on the various problems involved.

SCANDINAVIAN LANGUAGES

Old Icelandic 2 hours

Mr. Elmquist

A number of poems from the Edda. Lectures on the literature and other subjects. Sweet's Icelandic Primer.

Germanic Philology 2 to 4 year-hours

Mr. Elmquist

First semester. Gothic. Braune's *Gotische Grammatik*, Ulfilas (Stamm-Heyne-Wrede). Meringer's *Indogermanische Sprachwissenschaft*. Second semester. Old Saxon. Holthausen's

Altsächsisches Elementarbuch. Selections from the Heliand.
Loewe's Germanische Sprachwissenschaft. Streitberg's Ur-
germanische Grammatik.

SEMITIC LANGUAGES

Seminary in the Life and Beliefs of the Hebrews 2 hours

Professor Eiselen

A study of the religious and ethical development of the Hebrews as indicated in the activity and the teaching of the religious leaders of the nation.

Studies in Hebrew Prophecy 2 hours

Professor Eiselen

Exegetical and critical study of select portions from the prophetic books, centering around the following topics: prophetic inspiration; the prophet as a statesman; the prophet as a social reformer; the prophet as a preacher; Messianic prophecy.

Assyrian 2 hours

Professor Eiselen

A study of the Assyrian grammar and reading of historical texts.

Aramaic 1 hour

Professor Eiselen

A study of the Aramaic language and reading of the Aramaic portions of the Old Testament.

ZOÖLOGY

Sources of Biological Ideas from the Revival of Learning to the Present 1 hour

Professor Locy

Lectures and examination of the original documents

Studies on Animal Behavior 5 hours

Professor Harper

Introduction to Investigation 5 to 10 hours

Professor Locy

Work on an assigned problem with personal direction. A reading familiarity with French and German is essential.

Research Work 10 to 15 hours

Professor Locy

Chiefly on the structure and development of the nervous system and sense-organs.

GRADUATE STUDENTS, 1910-11

FELLOWS

- Field, Faith Winifred, Botany.....Springfield, Mo.
B.S. Drury College 1909; A.M. 1910
- Gethmann, Walter Wesley, Philosophy.....Reinbeck, Iowa
A.B. Charles City College 1906; A.M. Northwestern University 1910
- Sjöström, Vera, Romance Languages.....Sundwall, Sweden
A.B. Northwestern University 1910
- Smith, Eli Victor, Zoölogy.....Evanston
Ph.B. Illinois Wesleyan University 1907; A.M. University of Washington
1909
- Staples, Harry Nelson, Chemistry.....Sioux City, Ia.
A.B. Morningside College 1907
- Stockley, Florence Alberta, Greek.....Evanston
A.B. Northwestern University 1906
- Townsend, Lowell Leslie, English Literature.....Pennington, Ind.
A.B. Northwestern University 1909; A.M. 1910
- Troxell, Edward Leffingwell, Geology.....Payson, Utah
A.B. Northwestern University 1908
- Williams, Arthur, Latin.....Evanston
A.B. Northwestern University 1910

GRADUATE SCHOLARS

- Baker, Clara Belle, English Language.....Evanston
A.B. Northwestern University 1909
- Hokaasen, Otto Theodore, History.....Decorah, Ia.
A.B. Luther College 1909
- Hudson, Harris Gary, Greek.....Decatur
A.B. James Millikin University 1909
- Munakata, Hachro, Economics.....Japan
A.B. Simpson College 1910
- Stueckemann, Luella Cornelia, English Literature.....Warrenton, Mo.
A.B. Central Wesleyan College 1906
- West, Louis Caulton, History.....Cleveland, Ohio
B.S. Northwestern University 1905

-
- Jacobson, Roy Charles, Northwestern University Settlement Fellow..Geneseo
B.S. Northwestern University 1910

RESIDENT GRADUATE STUDENTS

- Abbott, Elsie Bourland.....Evanston
B.L. Smith College 1895
- Arthur, William Reed, Law.....Topeka, Kan.
A.B. Washburn College 1899

- Baker, Louis, ScandinavianAppleton, Wis.
A.B. Lawrence University 1906; A.M. Northwestern University 1908
- Bennett, Eralza Allen, History.....Evanston
Ph.B. Morningside College 1907
- Boot, Estelle Hallem Bennett, Celtic.....Evanston
B.L. University of South Dakota 1896
- Boren, John William, Chemistry (Medical School).....Marinette, Wis.
B.S. Northwestern University 1909
- Bradley, Alvin Percy.....Evanston
B.S. Northwestern University 1910
- Brown, Josephine Charlotte, English Language.....Niles Center
A.B. Northwestern University 1907
- Buckborough, Siegel A., Chemistry.....Evanston
A.B. Harvard University 1903
- Burg, John Charles.....Evanston
B.S. Northwestern University 1909
- Cady, Gilbert Haven, Geology.....Winfield, Kan.
A.B. Northwestern University 1905
- Cannon, Lucile Follett, Greek.....Oak Park
A.B. Northwestern University 1906
- Christman, Laura Ethel.....Evanston
B.S. Northwestern University 1910
- Cissna, William Everett, Philosophy.....Dolton Station
B.L. Moores Hill College 1910
- Daschler, Albert Frederick, Hebrew.....Staples, Minn.
A.B. Central Wesleyan College 1909
- Dildine, Harry Glenn, History.....Ionia, Mich.
A.B. Northwestern University 1903
- Duncan, Kenneth, History.....Kenilworth
A.B. Wabash College 1910
- Ehmen, Emil Sebo, History.....Melvin
A.B. Northwestern University 1910
- Ellis, Arthur Jackson, Geology.....Evanston
A.B. University of Illinois 1908
- Ellis, Cora Belle.....La Grange
A.B. Northwestern University 1906
- Foss, Tobias, Philosophy.....Evanston
Ph.B. Royal Frederick University, Norway, 1901; A.M. Northwestern
University 1909
- Furrey, George Washington, Physics.....Evanston
Ph.B. University of Michigan 1899
- Gethmann, Charles Wesley, Semitic Languages.....Oklahoma City, Okla.
A.B. Charles City College 1907; B.D. Garrett Biblical Institute 1910
- Gibson, Earl Stewart.....Evanston
A.B. Northwestern University 1909
- Gibson, Willis Stanley, Anatomy.....Chicago
A.B. DePauw University 1907

- Greenley, Parris C., Theology.....Houston, Del.
B.D. Drew Theological Seminary 1907; A.B. Hamline University 1909
- Hake, Joseph William, Physics.....Hoyleston
B.S. Central Wesleyan University 1907; A.B. University of Illinois 1909
- Harris, Hugh Henry, Education and Psychology.....Evanston
B.S. Northwestern University 1904; A.M. 1908
- Henke, Arthur William, Philosophy.....Charles City, Ia.
A.B. Charles City College 1904
- Hoffman, Richard Yates, Law.....Chicago
B.S. Hobart College 1907
- Hogue, Clara Mabel, English Literature.....Evanston
Ph.B. Greenville College 1904; A.M. Northwestern University 1910
- Holland, Robert T., Philosophy.....Scottsville, Ky.
A.B. Southern Normal School 1899; S.T.B. Grant University 1903
- Holmes, Merrill Jacob.....Indianola, Iowa
A.B. Simpson College 1908
- James, Helen Dickson.....Urbana
A.B. University of Illinois 1910
- Kirkpatrick, Blaine Evron.....Raub, Ind.
A.B. Northwestern University 1910
- Lawson, Peter Jacob, Philosophy.....Lyons, Neb.
A.B. Nebraska Wesleyan University 1899
- Lease, William Henry.....Evanston
A.B. Morningside College 1907
- Leonard, Walter Anderson.....Evanston
A.B. Nebraska State University 1903
- Little, Edith Regina, Romance Languages.....Evanston
A.B. Wells College 1907
- Little, Helen Marina, Romance Languages.....Evanston
A.B. Woman's College 1899
- Lowry, Charles Doak, Education.....Chicago
B.S. Northwestern University 1908
- McClure, Charles Sherman, Biblical Literature.....South Whitley, Ind.
A.B. Northwestern University 1909
- Mauler, Charles Theodore, Economics.....Des Moines, Ia.
A.B. Cornell College 1909
- Norton, Louise Werneburg, English Language.....Evanston
A.B. Northwestern University 1906
- Patterson, Evelyn Macfarlane.....Evanston
A.B. Bryn Mawr College 1904
- Payer, Josephine.....La Grange
B.S. Northwestern University 1908
- Penfield, Effie Mildred, Botany.....Perrinton, Mich.
A.B. University of Michigan 1910
- Pider, Myrtle Zoa, Philosophy.....Mankato, Kan.
A.B. Northwestern University 1910
- Pool, Clarence Gilbert, Neurology.....Amboy
B.S. University of Chicago 1908

Pooley, Eleanor Gertrude, History.....	Evanston
B.S. Northwestern University 1910	
Reardon, Neal Daniel, Law.....	Chicago
A.B. University of Illinois 1900	
Roberts, Percy Vivian.....	Joliet
A.B. Madras University 1901	
Rostock, Benjamin Franklin, Philosophy.....	Evanston
A.B. Northwestern University 1910	
Satterlee, Roscoe Earl, Law.....	Mitchell, S. D.
Ph.B. Dakota Wesleyan University 1907	
Shearer, Hallie Irene, Botany.....	Chicago
Ph.B. University of Rochester 1905	
Smith, Emmett Wilbur.....	Fort Sheridan
A.B. University of Minnesota 1904	
Stanwood, Elizabeth, History.....	Evanston
A.B. Vassar College 1908	
Tascher, John Ralph, Law.....	Chicago
A.B. University of New Mexico 1908	
Traxler, Bina Mae.....	Evanston
A.B. Northwestern University 1907	
Tyson, Anna May.....	Chicago
A.B. Northwestern University 1903	
Walker, John Daniel.....	Chicago
A.B. University of Nebraska 1908	
Walker, Marie Winchell, English Language.....	Chicago
M.D. Hahnemann Medical College 1899	
Warner, Glenn Yost, English Literature.....	Wooster, Ohio
B.S. Ohio Wesleyan University 1900	
Watson, Louis.....	Audubon, Iowa
A.B. Simpson College 1908	
Wendland, Charles John, Law.....	Chicago
B.S. Northwestern University 1909	
Wermuth, William Charles, History.....	Chicago
B.S. Northwestern University 1909	
Whitson, Thomas Merrick, Law.....	Chicago
A.B. Northwestern University 1908	
Wilson, Omar Janell, English Literature.....	Cameron, Mo.
A.B. Missouri Wesleyan University 1909	
Yeaton, Walter James, Geology.....	Livingston, Mont.
A.B. University of Minnesota 1909	

NON-RESIDENT GRADUATE STUDENTS

Derby, Horace Mann, History.....	Sidell
A.B. Northwestern University 1904	
Gough, Harry Bainbridge, English Language.....	Greencastle, Ind.
A.B. Northwestern University 1900	
Lewis, Chapman Simpson, English Language.....	Kewanee
A.B. Northwestern University 1904	
Paarlberg, Mary, German.....	Oakglen
Ph.B. Northwestern University 1902	

ADVANCED DEGREES CONFERRED IN JUNE, 1910

Jennie Matilda Anderson.....	Master of Arts
The financiers and finances of the Revolution in the West	
John Herbert Bachmann.....	Master of Arts
Die deutschen musenalmanache des 18. jahrhunderts	
Ruth Baker.....	Master of Arts
The technique of Marie von Ebner-Eschenbach's short stories	
Agnes Elisabeth Becker.....	Master of Arts
The Indians as a factor in the American Revolution	
Roscoe William Brink.....	Master of Arts
Studies in the relationship between Merlin and Angus Mac Og	
Justus Henry Cline.....	Master of Arts
The geology of the Fauquier-Culpeper slate district, Virginia	
Douglas Gordon Crawford.....	Master of Arts
Red as a sign of the marvellous warrior and castle in Arthurian romance	
Walter Wesley Gethmann.....	Master of Arts
The development of the idea of religious morality in Hebrew prophecy	
Cora Guthrie.....	Master of Arts
On double points of implicit functions of two variables	
Raymond Royce Hitchcock.....	Master of Arts
Mersenne's numbers and the reciprocal of Fermat's theorem	
Clara Mabel Hogue.....	Master of Arts
King Arthur's custom of fasting till an adventure happened. A study in Celtic and medieval romance	
Lloyd Clinton Holsinger.....	Master of Arts
The treatment of differential equations from the vector standpoint	
James Sherman King.....	Master of Arts
The courtly element in the Nibelungenlied	
Clyde Orlando Marietta.....	Master of Arts
The real branches of an implicit function in the neighborhood of a triple point	
Thomas Arch O'Farrell.....	Master of Arts
Personal Suggestibility	
Leslie Hall Redelings.....	Master of Science
Observations on the development of the cortex in mammals	
May Wood Simons.....	Master of Arts
History of economic thought in relation to industrial conditions in the United States, 1814-1837	
Olla Stevenson.....	Master of Arts
Der Einfluss des Wunderhorns auf Uhland	
Frederick Stolz.....	Master of Arts
The influence of Moses on the religious life and thought of the Hebrews	
Lowell Leslie Townsend.....	Master of Arts
A comparative study of the marvellous sword in Northern and Arthurian legend	
George Henry Von Tungeln.....	Master of Arts
The relations of morality to religion	
Esther Lucy White.....	Master of Arts
On the development of the bones of the wing and foot in the chick	

DIRECTORY

For information concerning the different departments of the University inquiries should be addressed as follows:

College of Liberal Arts—The Registrar, University Hall, Evanston, Illinois.

Graduate Courses—Chairman of Committee on Graduate Studies, University Hall, Evanston, Illinois.

Medical School—The Secretary, 2431 Dearborn Street, Chicago, Illinois.

Law School—The Secretary, Northwestern University Building, Lake and Dearborn Streets, Chicago, Illinois.

College of Engineering—The Director, College of Engineering, Evanston, Illinois.

School of Pharmacy—The Secretary, Northwestern University Building, Lake and Dearborn Streets, Chicago, Illinois.

Dental School—The Secretary, Northwestern University Building, Lake and Dearborn Streets, Chicago, Illinois.

School of Music—The Secretary, Music Hall, Evanston, Illinois.

School of Commerce—The Secretary, Northwestern University Building, Chicago, Illinois.

Evanston Academy—The Principal, Fisk Hall, Evanston, Illinois.

Grand Prairie Seminary—The Principal, Onarga, Illinois.

Elgin Academy—The Principal, Elgin, Illinois.



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